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CENTRAL INTELLIGENCE AGENCY

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THIS IS UNEVALUATED INFORMATION

1. MEZ Vsetin, National Enterprise, in Vsetin (N 49-20, E 18-00) supplied electric drives for planing machines produced by TOS (Factory for Production of Machine Tools) Holoubkov, National Enterprise, in Holoubkov (N 49-47, E 13-42). The TOS planing machines were of two types: HD 10 and HD 16. the numbers 10 and 16 represented the width of the bench in decimeters. The bench lengths varied from four to 12 meters and the planing machines had hydraulic equipment for operating the cutting tools. The HD 10 and HD 16 types were the first planing machines produced by TOS Holoubkov. Lathes were also produced in that factory. About 600 people were employed there.

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2. Both the HD 10 and HD 16 planing machines used the same type of electric drive. MEZ Vsetin produced the main equipment of the drive, i.e., the Ward-Leonard set. MEZ also assembled and installed all the equipment and was held responsible for the entire drive. This was an exceptional case; usually electric machinery produced by one of the MEZ plants was assembled and installed by EZ (Works for Assembly and Installation of Electric Equipment).

3. The Ward-Leonard set consisted of a wound rotor induction motor, probably type SN 45 A, a type M 2818 DC generator, and a DC driving motor. The driving motor was type MZ 28 45-4, rated for 45 kw., 60% output, at from 430 to 870 rpm, 260 v. Within the range 430 to 870 rpm, the number of revolutions per minute was regulated by field weakening at full voltage; for less than 430 rpm, the revolutions per minute were regulated by the voltage. The maximum speed of the bench was 80 meters per minute at 870 rpm. The operating speed was regulated down to eight meters per minute, the speed regulation following a one-to-10 ratio. In other words, the speed was eight meters per minute at 87 rpm. The lowest possible speed of the bench was about three meters per minute; however, no operation could be performed at this speed. The cutting speed and the reverse speed were regulated independently.

4. The excitors of the driving motors were, for about the first 10 motors, produced by MEZ Vsetin. Starting in 1952, the excitors were produced by MEZ Zidenice. The driving-motor excitor was driven by a squirrel-cage induction motor produced by MEZ, Mohelnice, National Enterprise, in Mohelnice (N 49-47, E 16-55). The same squirrel-cage induction motor drove a ventilator which cooled the driving motor. An amplidyne, type MA 1107, served as excitor for the M 2818 DC generator. Until the end of 1951, amplidynes were delivered by MEZ Development; starting with 1952, they were delivered by MEZ Zidenice. Arrangements were made to have the amplidynes produced by MEZ Vsetin starting with 1955. The amplidyne was driven by a squirrel-cage induction motor, also a product of MEZ Mohelnice. Preparations were made so that from 1955 onward, the driving-motor excitor would be driven by the same squirrel-cage induction motor which was used to drive the amplidyne; the other squirrel-cage induction motor would drive the ventilator only. Control equipment for the electric drive, i.e., pulpit, panel, as well as auxiliary equipment for partial control of the drive, was supplied by MEZ Postrelmov, National Enterprise, in Postrelmov (N 49-55, E 16-55).

5. The excitors of the driving motors proved to be defective and burned out rather frequently. This was, in fact, the main defect of the drive. The result was that at high speed the bench moved out of its bed because the mechanical brakes of the bench were weak. The bench also moved out when the supply of current from the net was cut off. In 1954, therefore, it was decided to arrange a relay within the exciting circuit of the driving motor which would cause the bench to stop. The relay was to be installed in equipment produced prior to 1955 as well as in equipment produced after that time. Furthermore, a proposal was made in 1953 that an AEG excitor be used for the driving-motor excitor instead of the MEZ Vsetin product. [redacted] this would probably be accomplished in 1955. MEZ Vsetin bought about 200 AEG excitors which had been in stock in Czechoslovakia since World War II. The excitors were in good condition and required only minor adjustments. 50X1

6. MEZ Vsetin manufactured the prototypes for the electric drive of the planing machines in 1950. The delivery of series production started in 1951, actually a relatively short time after the prototype was manufactured. Because of this, MEZ did not have much experience with the equipment. As of late summer 1954, slightly more than 100 units of the complete electric drive were delivered. Orders were expected to continue, but at a much smaller rate than previously. As a matter of fact, the quantity of units ordered decreased considerably after spring 1954.

7. TOS Holoubkov manufactured most of the planing machines for the domestic market; a smaller number were delivered to Satellite countries. About 10 machines were sent to the USSR and a few were sent to China. One machine was delivered to Budapest in 1953. This machine did not operate satisfactorily, probably because of improper installation of the electric equipment by Hungarian engineers. The equipment was to be returned to MEZ Vsetin for repair. TOS Holoubkov intended to export machines to India but MEZ Vsetin, when asked for a technical opinion, finally declared, in 1954, that the design of the electric drive was entirely unsatisfactory for India's climate.

8. During 1953, MEZ Development experimented with thyratron control. Using the prototype electric drive produced at MEZ Vsetin in 1950 (see paragraph 6 above), they substituted thyratron control in place of amplidyne control for the generator. The thyratron used was probably type Lg 1001, five amperes, designed for a maximum voltage of 1,500 -- a Siemens product which dated back to World War II. The equipment proved satisfactory but it never was used as standard equipment for the planing machines.

9. In 1952, MEZ Vsetin started to work on a prototype of an electric drive for an HD-20 planing machine, also a product of TOS Holoubkov. The planing machine was to be driven by two DC motors, each connected to the bench by its own gear. Holoubkov asked for the same type of motors as used for HD 10 and HD 16 planing machines but MEZ Vsetin used the MZ 31 33-4 type instead. This motor was shorter than the MZ 28 45-4 type, which was unnecessarily long. The two motors developed a total 60% output of 90 kw. and a total short time output of 180 kw. at from 430 to 870 rpm. There was no regulating in the field; the number of revolutions per minute was regulated by voltage, both below and above 430 rpm. The voltage was about 200 v at 430 rpm but did not exceed 440 v at 870 rpm. The maximum and minimum speed of the bench and the rate of speed regulation were the same as for the HD 10 and HD 16 types (see paragraph 3 above). The equipment was under production as of late summer 1954 and would probably be completed by spring 1955. It was assumed that orders for this drive would be made on a continuous basis but no details were known as of September 1954.

10. ZPS (Precision Machinery Works) in Gottwaldov, the development plant for the various ZPS works, designed a type of planing machine marked HD 30 or sometimes H 3150, for which V.I. Lenin Works in Pilsen was originally to produce the electric drive. However, in 1951, it was decided that the electric equipment would be designed by MEZ Vsetin. The prototype was manufactured by MEZ Development and the intended subsequent production of two other units was to be completed by MEZ Vsetin. The planing machine was driven by two DC motors connected in series. The total one-hour maximum output was 150 kw. or 207 hp at 300 rpm; the total short-time output was 450 kw. or 620 hp at 900 rpm. The regulation of revolutions per minute was performed by means of electronic control with amplidyne. The electronic control equipment as well as auxiliary equipment for the other two units was to be manufactured by MEZ Development. The speed of the bench as well as the rate of speed regulations were the same as for the HD-10 and HD-16 machines (see paragraph 3 above). The prototype of this electric equipment was completed in summer 1954 and delivered to a ZPS plant located somewhere in the Sazava River area; [redacted] 50X1 it was the ZPS plant in Ledec nad Sazavou (N 49-42, E 15-17) which was to produce these planing machines. As of September 1954, no order had yet reached MEZ Vsetin for production of the two remaining units of the electric drive.

11. In 1953, ZPS in Hulin (N 49-19, E 17-28) placed an order with MEZ Vsetin for electric drive to be installed in a machine used for planing sheet metal. This planing machine was put in production at the ZPS plant. Unlike the other planing machines mentioned in this report, the bench of this machine was not moveable but the support for cutting tools moved instead. The operator's stand was connected to the support and thus moved along with it. The electric drive was a Ward-Leonard set and developed about 15 kw. The number of revolutions was regulated by rototrol. As of late summer 1954, the prototype of the drive was still in the Specifications Section of MEZ Vsetin. Target date for completion was 1956. This drive was to be produced in small series on a continuous basis, about five units yearly.

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1. [redacted] Comment. Mass production of thyratrons in Czechoslovakia began in 1953. Thyratrons were produced by Tesla, specifically, [redacted] by the Tesla plant in Roznov pod Radhostem (N 49-28, E 18-08). 50X1